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IS 7553 (2003): Control Symbols for Powered Industrial Trucks [TED 22: Transport Tractors and Trailers]

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(पहला पुनरीक्षण)

Indian Standard

CONTROL SYMBOLS FOR POWERED INDUSTRIAL TRUCKS — SPECIFICATION

(First Revision)

ICS 53.060

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

September 2003 **Price Group 5**

Industrial Trucks Sectional Committee, TED 23

FOREWORD

This Indian Standard (First Revision) was adopted by Bureau of Indian Standards, after the draft finalized by the Industrial Trucks Sectional Committee had been approved by the Transport Engineering Division Council.

This standard was first published in 1975. The revision was undertaken to align it in line with ISO 3287:1978 'Powered industrial trucks — Control symbols' issued by the International Organization for Standardization.

In this revision, section pertaining to symbols for load handling is more elaborated such as relationship between button and lever motions is provided with diagrams.

The composition of the Committee responsible for the formulation of this standard is given at Annex F.

Indian Standard

CONTROL SYMBOLS FOR POWERED INDUSTRIAL TRUCKS — SPECIFICATION

(First Revision)

1 SCOPE

This standard defines symbols which will provide for the development of symbolic language of operator controls on powered industrial trucks. The symbols are divided into three sections:

Section 1	Symbols for load handling
Section 2	Symbols for other operational controls involving action
Section 3	Symbols for information or identification only

2 REFERENCE

The following standard contains provisions which through reference in this text, constitutes provisions of this standard. At the time of publication, the edition indicated was valid. All standards are subject to revision and parties to agreements based on this standard is encouraged to investigate the possibility of applying the most recent edition of the standard indicated below:

IS No.	*Title*
7496 : 1974	Specification for direction of travel controls for industrial tractors and powered industrial trucks

3 REPRODUCTION OF THE SYMBOLS

Reproduction, including enlargement or reduction of symbol size, should be by a photographic or similar process to retain exact proportion and line thickness. In order to comply with national standards, changes in proportion of the symbols are permitted, but such changes shall not alter or modify the substantive contents and meaning of the symbol.

3.1 Basic Symbols

These are used as building blocks to develop symbols which are listed in this standard (*see* Annex A). In **A-1**, **A-2** and **A-3**, the common elements or basic symbols are listed as the item or the medium being represented, and finally the usage of the medium.

SECTION 1 SYMBOLS FOR LOAD HANDLING

4 USE OF SYMBOLS

4.1 Symbols shall be durable and provide contrast with surrounding materials.

4.2 Symbols shall be located on or adjacent to the control lever for the function depicted in a manner to avoid confusion or misunderstanding.

4.3 The direction of movement of controls in relation to the movement of parts or function controlled are set forth in IS 7496. These motions may be categorized as follows:

Sl No.	*Type of Lever*	*Motion of Lever Relative to Operator*
i)	Control levers where the knob moves in a substantially horizontal plane	Pull / Push
ii)	Control levers where the knob moves in a substantially vertical plane	Raise / Lower

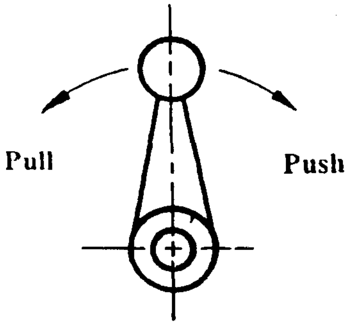
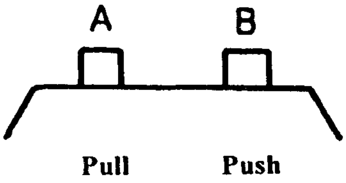
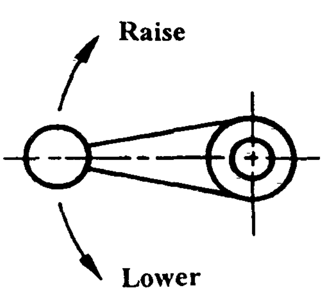
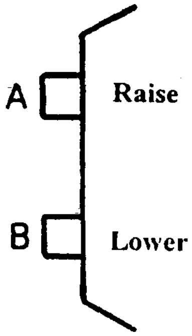
4.4 The location and arrangement of push-buttons when used to control movement of parts or function controlled are set forth in IS 7496. These arrangements may be related to the corresponding movement of levers in such a manner that the pushing of a button causes the same movement as though the button represented location of a handle after it had been moved; the horizontal arrangement of push-buttons should be related to the motion of a vertical lever while the vertical arrangement of push-buttons should be related to the motion of a horizontal lever. The relationship between button and lever motion is given in Table 1.

4.5 Where only one of a given pair of symbols is used, that symbol corresponding to pull (for vertical levers — knob moving in a horizontal plane) and raise (for horizontal levers — knob moving in a vertical plane) shall be used. The single symbol may be used only when both directions of motion or control are accomplished by the same means. Where two means are required (for example push-buttons), both symbols shall be used.

4.6 In those unusual circumstances where it becomes necessary to deviate from the usual conventions set forth in **4.3** and **4.4**, both symbols should be used. Particular attention should be given to positioning the symbols so that they avoid confusion or misunderstanding.

Table 1 Relationship Between Button and Lever

(*Clause* 4.4)

Type of Lever	Arrangements of Buttons	Corresponding Motion Relative to Operator
Vertical (Knob moving in horizontal plane) 	Horizontal 	Pull Push Depress A to pull Depress B to push
Horizontal (Knob moving in vertical plane) 	Vertical 	Raise Lower Push A to raise Push B to lower

4.7 Load handling symbols are depicted in Annex B.

4.8 Typical applications of the symbols specified in **5** are shown in Annex C.

NOTE— Symbols may be re-oriented when the symbolical representation is significantly different from the action or device represented. For example, symbols related to lift, tilt and reach given at Annex B may be turned through 180° to suit side-seated trucks with fork arms pointing in the opposite direction.

SECTION 2 SYMBOLS FOR OTHER OPERATIONAL CONTROLS INVOLVING ACTION

5 USE OF SYMBOLS (*see* Annex D)

5.1 In the use of symbols for controls other than for load handling the following convention shall be observed.

5.1.1 Except where otherwise delineated, only one symbol identifying the control shall be used.

5.2 Where more than one symbol is required (for example On-Off), the symbols shall be so located in relation to the control device that movement of the device, in a direction indicated by the relation of the symbols when such symbols are affixed to the control device, shall indicate the sense of the control.

SECTION 3 SYMBOLS FOR INFORMATION OR IDENTIFICATION ONLY

6 USE OF SYMBOLS

6.1 In the use of symbols for information of identification only, such symbols should be located on or in close proximity to the indicator or device to be identified.

6.1.1 *Example*

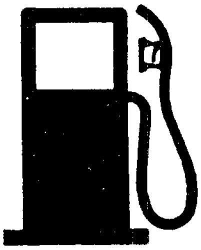
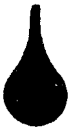
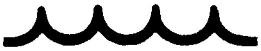
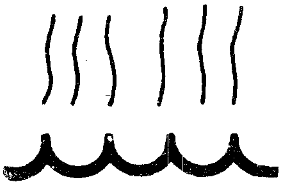
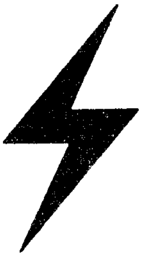
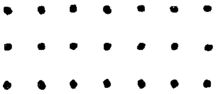
It is suggested that symbol of 'Engine oil fill' shown at Annex E be located on or close to the filler cap where oil is to be added to the engine.

ANNEX A

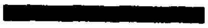
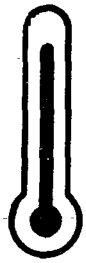
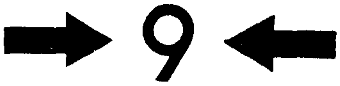
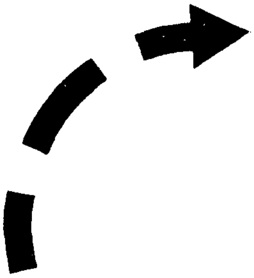
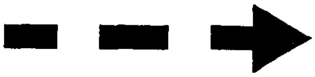
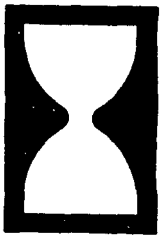
(*Clause* 3.1)

BASIC SYMBOLS

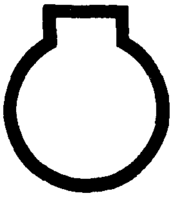
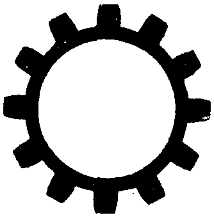
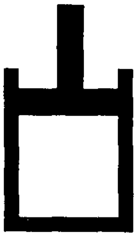
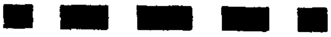
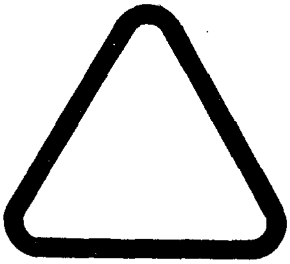
A-1 MEDIUM

		
FUEL	OIL	WATER
		
STEAM	CURRENT	AIR

A-2 STATE

		
LEVEL	TEMPERATURE	PRESSURE
		
ROTATION	MOVEMENT	TIME

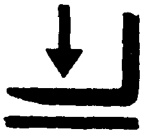
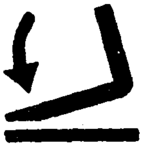
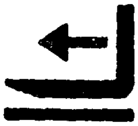
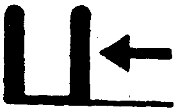
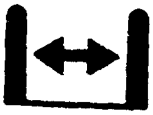
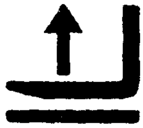
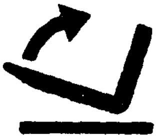
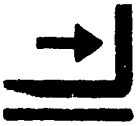
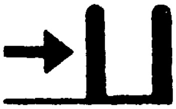
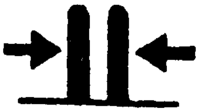
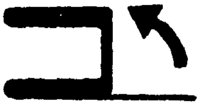
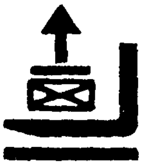
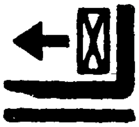
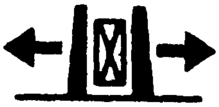
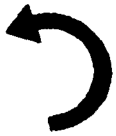
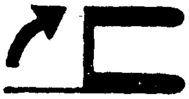
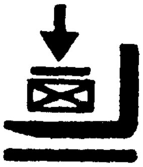
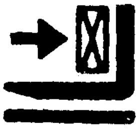
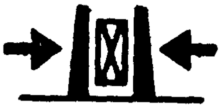
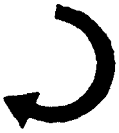
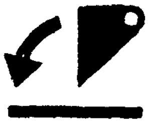
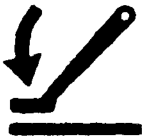
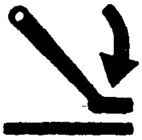
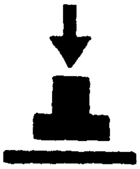
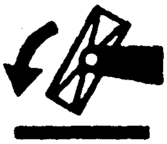
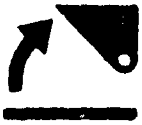
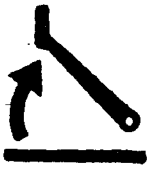
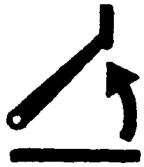
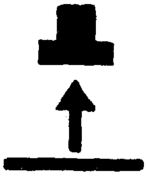
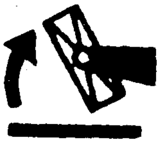
A-3 USAGE

		
ENGINE	**TRANSMISSION**	**HYDRAULIC**
		
FILTER	**CAUTION**	

ANNEX B

(*Clauses* 4.7 *and* 4.8)

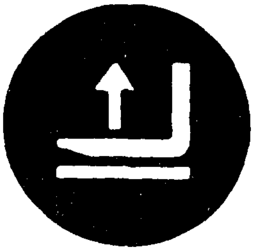
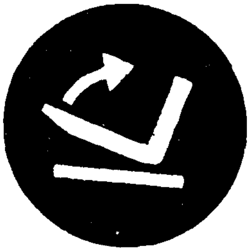
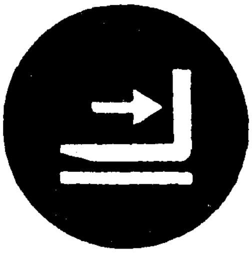
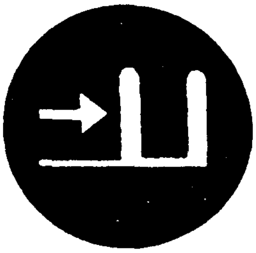
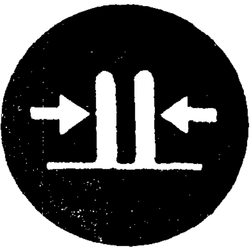
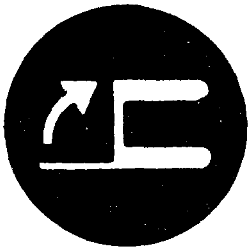
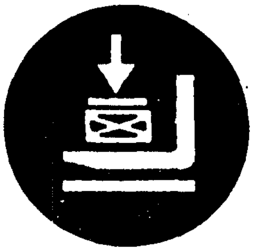
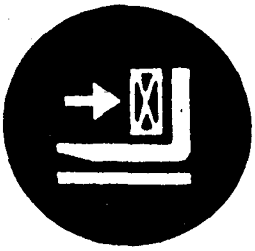
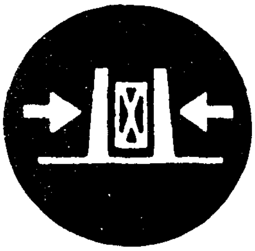
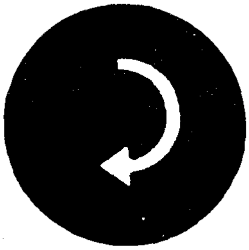
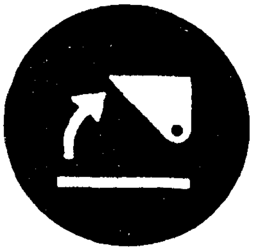
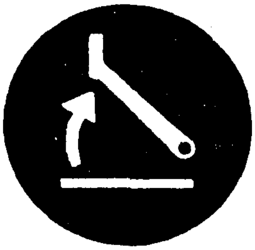
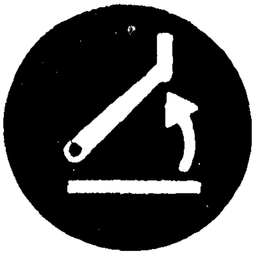
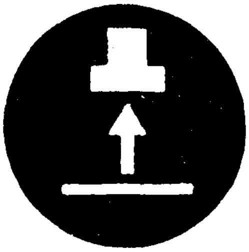
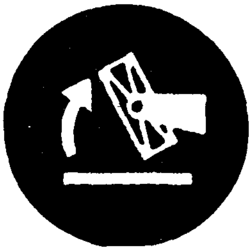
LOAD HANDLING SYMBOLS

				
Lower	*Forward*	*Extend*	*To left*	*Open*
				
Raise	*Rearward*	*Retract*	*To right*	*Close*
LIFT	TILT	REACH	SIDESHIFT	FORK SPREAD
				
Anti-clockwise	*Release*	*Push*	*Release*	*Anti-clockwise*
				
Clockwise	*Clamp*	*Pull*	*Clamp*	*Clockwise*
SWING (OR PIVOT)	LOAD STABILIZER	PUSH/PULL	CLAMP	ROTATE
				
Forward edge down	*Lower*	*Lower*	*Lower*	*Forward edge down*
				
Forward edge up	*Raise*	*Raise*	*Raise*	*Forward edge up*
SCOOP	LEFT STABILIZER	RIGHT STABILIZER	ALTERNATE STABILIZER	UPENDER

ANNEX C

(*Clause* 4.8)

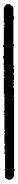
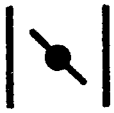
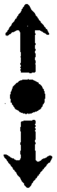
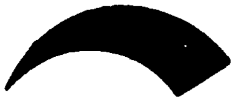
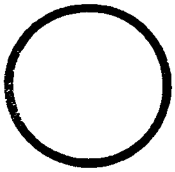
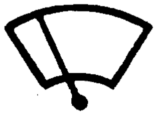
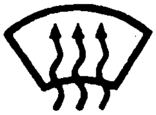
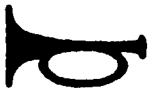
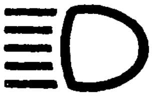
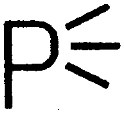
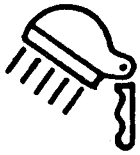
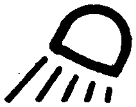
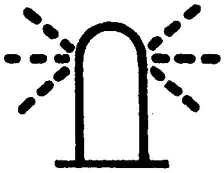
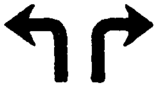
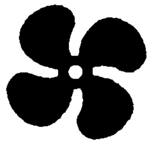
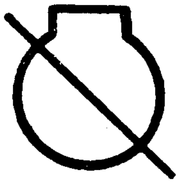
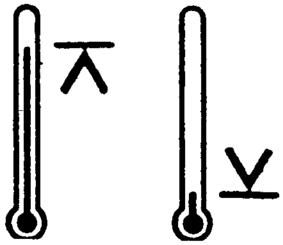
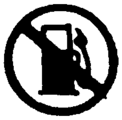
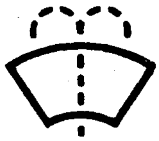
TYPICAL APPLICATIONS

			
LIFT	**TILT**	**REACH**	**SIDESHIFT**
			
FORK SPREAD	**SWING (OR PIVOT)**	**LOAD STABILIZER**	**PUSH/PULL**
			
CLAMP	**ROTATE**	**SCOOP**	**LEFT STABILIZER**
			
RIGHT STABILIZER	**ALTERNATE STABILIZER**	**UPENDER**	

ANNEX D

(*Clause* 5)

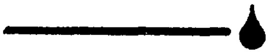
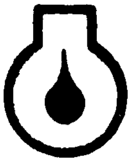
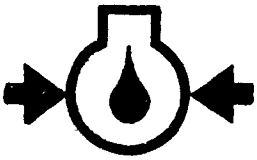
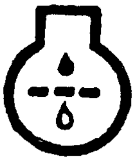
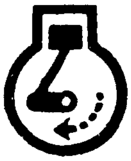
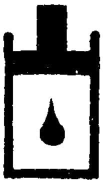
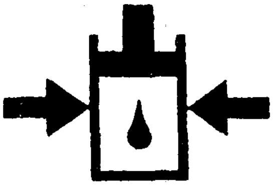
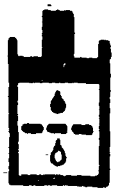
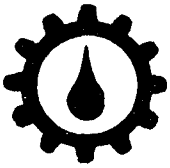
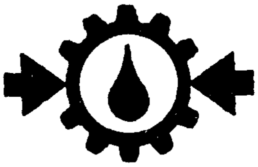
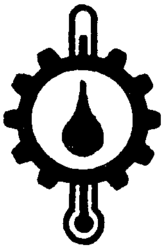
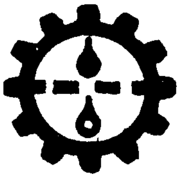
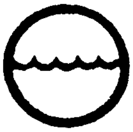
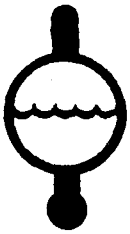
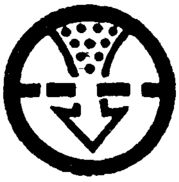
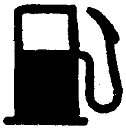
SYMBOLS FOR OTHER OPERATIONAL CONTROLS INVOLVING ACTION

 *On*			
	CHOKE	**FORWARD/ REVERSE**	**SPEED RANGE**
 *Off*			
ON-OFF	**WINDSHIELD WIPER**	**WINDSHIELD DEFROSTER**	**HORN**
			
HEADLIGHTS	**PARKING LIGHT**	**SPOTLIGHT**	
		 *Left* *Right*	
FLOODLIGHTS	**BEACON**	**TURN INDICATORS**	**BLOWER (WARM AIR/COLD AIR)**
			
ENGINE STOP	**TEMPERATURE CONTROL**	**FUEL SHUT-OFF**	**WINDSHIELD WASHER**

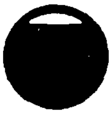
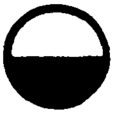
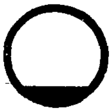
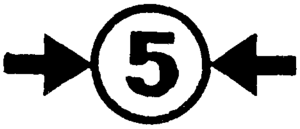
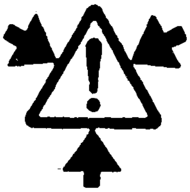
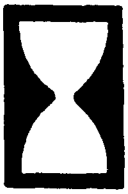
ANNEX E

(*Clause* 6.1.1)

SYMBOLS FOR INFORMATION OR IDENTIFICATION ONLY

			
OIL LEVEL	ENGINE OIL FILL	ENGINE OIL PRESSURE	ENGINE OIL FILTER
			
ENGINE ROTATIONAL FREQUENCY	HYDRAULIC OIL FILL	HYDRAULIC OIL PRESSURE	HYDRAULIC OIL FILTER
			
TRANSMISSION OIL FILL	TRANSMISSION OIL PRESSURE	TRANSMISSION OIL TEMPERATURE	TRANSMISSION OIL FILTER
			
WATER FILL (NO PRESSURE)	COOLANT TEMPERATURE	AIR FILTER	FUEL

ANNEX E — *Contd*

 *Full*  *Half*  *Empty*			
	AIR PRESSURE	**CAUTION: PRESSURIZED**	**HOURS**
LEVEL			

ANNEX F

(*Foreword*)

COMMITTEE COMPOSITION

Industrial Trucks Sectional Committee, TED 23

Organization	*Representative(s)*
Macneill Engineering Ltd, Kolkata	Shri S. Raychoudhary (***Chairman***)
Chennai Port Trust, Chennai	Shri N. A. Kamath
	Shri V. Ram Doss (*Alternate*)
Department of Heavy Industries and Public Enterprises, New Delhi	Shri Sushil Kumar
	Shri B. N. Das (*Alternate*)
Directorate General of Aeronautical Quality Assurance, New Delhi	Shri D. Gangopadhyay
	Shri N. K. Mahawar (*Alternate*)
Directorate General of Quality Assurance, Kolkata	Shri D. Pal
	Shri S. K. Deb (*Alternate*)
Directorate General of Factory Advice, Chennai	Shri G. M. E. K. Raj
	Shri S. B. Mathur (*Alternate*)
Directorate General of Supplies & Disposals, New Delhi	Shri S. K. Gautam
	Shri S. M. Munjal (*Alternate*)
Escorts Construction Equipment Ltd, Faridabad	Shri Ravindra Luthra
	Shri S. K. Aggarwal (*Alternate*)
Godrej Boyce Manufacturing Co Pvt Ltd, Mumbai	Shri H. F. Ragina
	Shri D. B. Vijayakar (*Alternate*)
Indital Construction Machinery Ltd, Bangalore	Shri Ravi Kumar
Jost's Esngg Co Ltd, Thane	Shri Girish Malviya
	Shri S. J. Buch (*Alternate*)
Kolkata Port Trust, Kolkata	Shri S. Chakraborty
Macneill Engineering Ltd, Kolkata	Shri K. K. Mitra
Ministry of Railways, New Delhi	Shri R. C. Sharma
	Shri Love Devraj (*Alternate*)
Mumbai Port Trust, Mumbai	Shri N. G. Kamat Satoskar
	Shri R. Nagarajan (*Alternate*)
Punjab Tractors Ltd, Ropar	Shri N. S. Nindi
	Shri A. C. Bhattacharya (*Alternate*)
Research Design & Standards Organization, Lucknow	Joint Director (Standards)
	Assistant Design Engineer [Container](*Alternate*)
Texmaco Ltd, Kolkata	Shri Alok K. Haldar
Vehicle, Research & Development Establishment, Ahmednagar	Shri V.P. Sulakhe
	Shri M. N. Srivastava (*Alternate*)
Voltas Ltd, Mumbai	Shri D. B. Sardesai
	Shri G. D. Sahai (*Alternate*)
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Member Secretary
Shri P. K. Sharma
Director (TED), BIS

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